```
S52 and (stiff or stiffener or stiffening or stiffened)
                                          S54 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                    S55 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                  S63 and ( (heat$1sink or (heat adj sink)) same (cte or coefficient) )
                                                                                                                                                                                                                                                                                                                                                                                                                 S63 and ( (heat$1sink or (heat adj sink)) with (cte or coefficient) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S68 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S70 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S71 not S69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 $73 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S73 and S84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S73 and S89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S74 and ( (heat$1sink or (heat adj sink)) with (cte or coefficient) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S74 not S71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S75 and ( (heat$1sink or (heat adj sink)) with (cte or coefficient) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S81 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S85 not S72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S91 and ( (heat$1sink or (heat adj sink)) with ((front or top) adj surface) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S94 and ( (cte or warp or mismatch or mismatched or mismatching or stress or warpin US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S94 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S1 and (((twin or second or double or "2nd") adj (heat$1sink or (heat adj sink)) ) with (IUS-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S1 and (((twin or second or double or "2nd") adj (heat$1sink or (heat adj sink)) ) with (IUS-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S5 and (((twin or second or double or "2nd") adj (heat$1sink or (heat adj sink)) ) with (IUS-PGPUB; USPAT
                                                                                         S54 and (stiff or stiffener or stiffening or stiffened)
                                                                                                                                                                               S58 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                              S60 and ( (heat$1sink or (heat adj sink)) with (cte or coefficient) )
                                                                                                                                                                                                                                                                          S60 and ( (heat$1sink or (heat adj sink)) with (cte or coefficient) )
                                                                                                                                                                                                                                                                                                                           S60 and (cte)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ("5397917" | "5583378" | "5724230" | "5726493" | "5796038" | "5854511" | "5866943" | US-PGPUB; USPAT; USOCR 2/15/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-PGPUB; USPAT
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                                                                                                                                                                                                                              US-PGPUB; USPAT
                                                                                                                                                                                                                                                                          EPO; JPO; DERWENT
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  US-PGPUB; USPAT
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                                                                                         US-PGPUB; USPAT
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26
                                                                                                                                                                                                                                                                                                                                                                                           S119 and (("257"/$3.cor.) or ("438"/$3.cor.) or ("361"/$3.cor.))
4878106 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sUS-PGPUB; USPAT
                                                              6069023 and (@ad<"20040703" or @rlad<"20040703")
                                                                                             cte and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) ; US-PGPUB; USPAT
                                                                                                                                   S100 not S97
                                                                                                                                                                S101 not S86
                                                                                                                                                                                           S104 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                           S105 and ( (another or additional) adj (heat$1sink or (heat adj sink)) )
                                                                                                                                                                                                                                                          S105 and ( (twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink US-PGPUB; USPA1
                                                                                                                                                                                                                                                                                          S11 and ((twin or second or double or "2nd" or two) adj (heat$1sink or (heat adj sink)) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                          S117 and ( (other or additional or another or twin or second or double or "2nd" or two) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                              S118 not S115
                                                                                                                                                                                                                                                                                                                                                                                                                           S12 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                          S121 not (S119 or S115)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S124 not S122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S20 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S26 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S29 and (heat$1sink or (heat adj sink))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S31 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S41 and ( (heat$1sink or (heat adj sink)) with (cte or coefficient) with ("same" near (ca US-PGPUB; USPA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S41 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S44 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S18 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S22 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S27 not S21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S32 and (heat$1sink or (heat adj sink))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S36 and (@ad<"20040703" or @rlad<"20040703")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S38 not S37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S41 and ( (heat$1sink or (heat adj sink)) with (cte or coefficient) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S46 and (@ad<"20040703" or @rlad<"20040703")
                                 US-PGPUB; USPAT
                                                              US-PGPUB; USPAT
                                                                                                                              US-PGPUB; USPAT
                                                                                                                                                              US-PGPUB; USPAT
                                                                                                                                                                                            US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                            US-PGPUB; USPAT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-PGPUB; USPA<sup>-</sup>
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                                                                                                                                                                                                                            US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-PGPUB; USPAT
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| 2/18/05 | | 10 |
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| 2/18/05 | S157 not S147 US-PGPUB: USPAT | 10 |
| 2/18/05 | S158 not S141 US-PGPUB; USPAT | 10 |
| 2/18/05 | S161 not S160 US-PGPUB; USPAT | 23 |
| 2/16/05 | 5811317 US-PGPUB; USPAT | ≅ |
| 2/16/05 | 6265771 US-PGPUB; USPAT | 21 |
| 2/16/05 | 6265771 US-PGPUB; USPAT | 2 |
| 2/16/05 | (((back\$1side or (back adj side) or bottom) adj (heat\$1sink or (heat adj sink))) with (c US-PGPUB; USPAT | 2 |
| 2/16/05 | (((front\$1side or (front adj side) or top) adj (heat\$1sink or (heat adj sink))) with (cte oı US-PGPUB; USPAT | 0 |
| 2/16/05 | (((twin or second or double or "2nd" or two) adj (heat\$1sink or (heat adj sink))) with ("US-PGPUB; USPAT | თ |
| 2/16/05 | (((twin or second or double or "2nd" or two) adj (heat\$1sink or (heat adj sink))) with ("US-PGPUB; USPAT | _ |
| 2/16/05 | (((twin or second or double or "2nd" or two) adj (heat\$1sink or (heat adj sink))) with (cUS-PGPUB; USPAT | 13 |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with ("same" adj (cte)) with carrier) | 0 |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with ("same" adj (cte)) with substrate) US-PGPUB; USPAT | 0 |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with ("same" adj (material or metal or coefficient)) with US-PGPUB; USPAT | ·ω |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with ("same" adj (material or metal or coefficient)) with US-PGPUB; USPAT | 2 |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with ("same" near (cte or coefficient)) with (carrier or s US-PGPUB; USPAT | œ |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with ("same" near2 (cte or coefficient)) with (carrier or US-PGPUB; USPAT | 1 |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with ("same" near (carrier or st US-PGPUB; USPAT | _ |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with (cte or coefficient) with ("same" near2 (carrier or : US-PGPUB; USPAT | 4 |
| 2/16/05 | ((heat\$1sink or (heat adj sink)) with (identical or close) with (cte or coefficient) with (c: US-PGPUB; USPAT | 22 |
| SOCR 2/16/05 | ("4383270" "5491362" "5888884" "6163458" "6288900" "6294831").PN. US-PGPUB; USPAT; USOCR 2/16/05 | თ |
| SOCR 2/16/05 | ("5157480" "5345106" "5757080" "5793108" "5869883" "5929513" "6002181" US-PGPUB; USPAT; USOCR 2/16/05 | 12 |
| USOCR 2/16/05 | ("5397746" "5489801" "5811317" "6015722" "6313521" "6323547" "6465827").IUS-PGPUB; USPAT; U | 7 |
| 2/16/05 | (((other or additional or another or twin or second or double or "2nd" or two) adj (heat: US-PGPUB; USPAT | თ |
| 2/16/05 | (("257"/\$3.cor.) or ("438"/\$3.cor.) or ("361"/\$3.cor.)) and ((other or additional or anoth: US-PGPUB; USPAT | ဒ္ဌ |
| 2/16/05 | (advanced and semiconductor and engineering).as. and (heat\$1sink or (heat adj sink);US-PGPUB; USPAT | 12 |
| 2/16/05 | (stiff or stiffener or stiffening or stiffened) and S108 US-PGPUB; USPAT | 0 |
| 2/16/05 | (stiff or stiffener or stiffening or stiffened) and S110 US-PGPUB; USPAT | თ |
| 2/16/05 | (stiff or stiffener or stiffening or stiffened) and S122 US-PGPUB; USPAT | 0 |
| 2/16/05 | (US-20040217472-\$ or US-20040217485-\$ or US-20040238944-\$ or US-2005000131·US-PGPUB; USPAT | 17 |
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| 1 5285352.PN. 1 5065281.PN. | 6 59065458 "59219942" | 19 S114 and ((other or ad | 22 S149 and (ball or bump | 27 S163 and (ball or bump | 17 S165 and ((other or ad | 36 S165 and ((other or ad | 13 S169 not S166 | 8 S172 not S171 | 22 S174 not S171 | 22 S174 not S172 | 22 S174 not S173 | 37 S178 not S177 | 13 S188 not S183 | 18 S190 not S188 | 45 5197 101 5190 | | | | | | n O | no N | no NN | | | | | | |
|--------------------------------|-----------------------|---|--|--|--|---|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---------|-----------------|------------------------------------|--|--|--|---|---|---|--|---|--|--|--|
| | | S114 and ((other or additional or another or twin or second or double or "2nd" or two) US-PGPUB; USPAT | S149 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or fl | S163 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or fl | and ((other or additional or another or twin or second or double or "2nd" or two) USPAT | S165 and ((other or additional or another or twin or second or double or "2nd" or two) | | | | | | | | | | | | | ("4918571" "5311060" "5430611" "5473510" "5528462" "5838064" "607850 6285553 5926371 | ("5212402" "5450283" "5663593" "5731631" "5849608" "5969947").PN ("4918571" "5311060" "5430611" "5473510" "5528462" "5838064" "60 6285553 5926371 | (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or ("5212402" "5450283" "5663593" "5731631" "5849608" "5969947").PN. ("4918571" "5311060" "5430611" "5473510" "5528462" "5838064" "6078506628553 5926371 | (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or (361/704.ccls.) and ((@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or ("5212402" "5450283" "5663593" "5731631" "5849608" "5969947").PN. ("4918571" "5311060" "5430611" "5473510" "5528462" "5838064" "6078506285553 5926371 | \$102 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or fl (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or ("5212402" "5450283" "5663593" "5731631" "5849608" "5969947").PN. ("4918571" "5311060" "5430611" "5473510" "5528462" "5838064" "6078506685553 | \$129 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or fl \$102 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or fl (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or ("5212402" "5450283" "5663593" "5731631" "5849608" "5969947").PN. ("4918571" "5311060" "5430611" "5473510" "5528462" "5838064" "6078506628553 | 7.ccls.) p or bga or (ball\$1grid) or (ball adj p or bga or (ball\$1grid) or (ball adj p or bga or (ball\$1grid) or (ball adj)ad<"20040703" or @rlad<"200407)ad<"20040703" or @rlad<"200407)" "5663593" "5731631" "58496)" "5430611" "5473510" "55284 | \$140 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$-US-PGPUB; USPAT \$138 and (257/706,707.ccls.) US-PGPUB; USPAT \$129 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$-US-PGPUB; USPAT \$102 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip adj chip) or flip\$-US-PGPUB; USPAT (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or (he US-PGPUB; USPAT (361/704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat\$1sink or (he US-PGPUB; USPAT ("5212402" "5450283" "5663593" "5731631" "5849608" "5969947").PN. US-PGPUB; USPAT ("4918571" "5311060" "5430611" "5473510" "5528462" "5838064" "6078506" US-PGPUB; USPAT ("978553) US-PGPUB; USPAT ("978553) | or (heat adj sink)) p or bga or (ball\$1grid) or (ball adj 7.ccls.) p or bga or (ball\$1grid) or (ball adj p or bga or (ball\$1grid) or (ball adj p or bga or (ball\$1grid) or (ball adj)ad<"20040703" or @rlad<"200407)ad<"200407703" or @rlad<"200407)ad<"5663593" "5731631" "58496)" "5430611" "5473510" "55284 | or (heat adj sink)) p or bga or (ball\$1grid) or (ball adj 7.ccls.) p or bga or (ball\$1grid) or (ball adj p or bga or (ball\$1grid) or (ball adj p or bga or (ball\$1grid) or (ball adj pad<"20040703" or @rlad<"200407 pad<"20040703" or @rlad<"200407 pad<"5663593" "5731631" "58496" " "5430611" "5473510" "55284 | \$150 and ((heat\$1sink or (heat adj sink)) with (carrier or board or pcb)) \$146 not \$141 \$143 and (heat\$1sink or (heat adj sink)) \$143 and (heat\$1sink or (heat adj sink)) \$140 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip ac \$138 and (257/706,707.ccls.) \$129 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip ac \$102 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip ac \$102 and (ball or bump or bga or (ball\$1grid) or (ball adj grid) or (flip ac \$1704.ccls.) and (@ad<"20040703" or @rlad<"20040703") and ((heat \$1704.ccls.) and (@ad<"20040703") and (@ad<"20040703" or @rlad<"20040703") and (@ad<"20040703") and |
| | | and or double or "2nd" or two) | | | and or double or "2nd" or two) | | | | | | | | | | | | | | 162" "5838064" "6078506" | ;08" "5969947").PN. ;62" "5838064" "6078506" | | 703") and ((heat\$1sink or (he 703") and ((heat\$1sink or (he ;08" "5969947").PN. ;62" "5838064" "6078506" | grid) or (flip adj chip) or flip\$703") and ((heat\$1sink or (he 703") and ((heat\$1sink or (he 508" "5969947").PN. | grid) or (flip adj chip) or flip\$- grid) or (flip adj chip) or flip\$- 703") and ((heat\$1sink or (he 703") and ((heat\$1sink or (he 308" "5969947").PN. 162" "5838064" "6078506" | grid) or (flip adj chip) or flip\$'grid) or (flip adj chip) or flip\$'703") and ((heat\$1sink or (he 703") and ((heat\$1sink or (he 508" "5969947").PN. | grid) or (flip adj chip) or flip\$-grid) or (flip adj chip) or flip\$-grid) or (flip adj chip) or flip\$-703") and ((heat\$1sink or (he 703") and ((heat\$1sink or (he 508" "5969947").PN. | grid) or (flip adj chip) or flip\$? grid) or (flip adj chip) or flip\$? grid) or (flip adj chip) or flip\$? 703") and ((heat\$1sink or (he 703") and ((heat\$1sink or (he 508" "5969947").PN. 162" "5838064" "6078506" | grid) or (flip adj chip) or flip\$? grid) or (flip adj chip) or flip\$? grid) or (flip adj chip) or flip\$? 703") and ((heat\$1sink or (he 703") and ((heat\$1sink or (he 508" "5969947").PN. | ij chip) or fl ij chip) or fl ij chip) or fl at\$1sink or at\$1sink or ").PN. |
| USPAT; USOCR USPAT; USOCR | JPO; DERWENT | US-PGPUB; USPAT | ip\$⁻US-PGPUB; USPAT | ip\$^US-PGPUB; USPAT | USPAT |) US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | US-PGPUB; USPAT | | US-PGPUB; USPAT | US-PGPUB; USPAT US-PGPUB; USPAT | | | | | | | | | | | |
| 2/19/05 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/05 | 2/19/03 | 3/10/05 | 2/18/05 | 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 | USOCR 2/18/05 USOCR 2/18/05 2/18/05 2/18/05 | 2/18/05 CR 2/18/05 CR 2/18/05 2/18/05 2/18/05 | 2/18/05 2/18/05 CR 2/18/05 CR 2/18/05 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 CR 2/18/05 CR 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 2/18/05 0CR 2/18/05 0CR 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 0CR 2/18/05 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 0CR 2/18/05 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 0CR 2/18/05 0CR 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 0CR 2/18/05 2/18/05 2/18/05 | 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 2/18/05 0CR 2/18/05 2/18/05 2/18/05 |

| S235 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (b: S233 not (S229 or S227 or S220) |
|--|
| S239 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (b S236 not (S233 or S229 or S227 or S220) |
| S240 not (S236 or S233 or S229 or S227 or S220) |
| S243 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball:US-PGPUB; USPAT |
| S243 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball: US-PGPUB; USPAT |
| S245 not (S240 or S236 or S233 or S229 or S227 or S220) |
| S250 not (S245 or S240 or S236 or S233 or S229 or S227 or S220) |
| S253 not (S245 or S240 or S236 or S233 or S229 or S227 or S220) |
| ((heat\$1sink or (heat adj sink))) and S181 |
| ((heat\$1sink or (heat adj sink)) with (bottom) with top with "both") and (@ad<"2004 |
| (heat\$1sink or (heat adj sink)) with ((center or middle) near substrate)) and (@ad<"2(US-PGPUB; USPAT |
| (heat\$1sink or (heat adj sink)) with ((center or middle) near2 (carrier or pcb or substriUS-PGPUB; USPAT |
| (heat\$1sink or (heat adj sink)) with (bottom near substrate)) and (@ad<"20040703" oUS-PGPUB; USPAT |
| (heat\$1sink or (heat adj sink)) with double) and (@ad<"20040703" or @rlad<"200407US-PGPUB; USPAT |
| (heat\$1sink or (heat adj sink)) with plate with (act or acting)) and (@ad<"2004070 |
| (heat\$1sink or (heat adj sink)) with plate with (bottom)) and (@ad<"20040703" or @r US-PGPUB; USPAT |
| (heat\$1spreader or (heat adj spreader)) with ((center or middle) near2 (carrier or pcb US-PGPUB; USPAT |
| heat\$1spreader or (heat adj (sink or spreader)) or heat\$1sink) and S180 |
| heat\$1spreader or (heat adj (sink or spreader)) or heat\$1sink) and S196 |
| heat\$1spreader or (heat adj (sink or spreader)) or heat\$1sink) and S199 |
| ("5817530" "5776512" "6080264" "5886412" "6051886" "6737750" "6005778" "6798 |
| ("5866943").PN. or ("5886406" "5990552" "5786630").PN |
| |
| ("6118177" "4561011" "6178093" "5586006" "6281573" "5883425" "6396136" "6362 |
| |
| (heat\$1sink or (heat adj sink)) and "5065281" and (@ad<"20040703" or @rlad<"2004(US-PGPUB; USPAT |
| (heat\$1sink or (heat adj sink)) and "5293301" and (@ad<"20040703" or @rlad<"2004(US-PGPUB; USPAT |
| (US-20020079592-\$ or US-20020185718-\$ or US-20040217472-\$ or US-2004021748!US-PGPUB; USPAT |

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S230 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball: US-PGPUB; USPAT
                                                                                                                                                                                                S6 and (stiff or stiffener or stiffening or stiffened)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S207 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball: US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S214 not S213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S219 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball: US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S222 not S220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S224 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball: US-PGPUB; USPAT
                                                (US-20020079592-$ or US-20020185718-$ or US-20030122242-$ or US-2003014650; US-PGPUB; USPAT
                                                                                                 5841194 and (stiff or stiffener or stiffening or stiffened or stiffen)
                                                                                                                                                 S259 and (stiff or stiffener or stiffening or stiffened or stiffen)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5991156 "5693572"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S201 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball: US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S229 not (S227 or S220)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S225 not S223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S226 not S218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S232 and (@ad<"20040703" or @rlad<"20040703") and ((ball or bump or bga or (ball: US-PGPUB; USPAT
("5291062" | "5473510" | "5619399" | "5703753" | "5841194" | "5920120" | "6208515" | US-PGPUB; USPAT; USOCR 3/4/05
                                                                                                                                                                                                                                            ( (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ("6011304"|"5909056"|"6407334"|"6528879").PN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) a US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ("5285352" | "5430331" | "5442234" | "5528458" | "5541450" | "5583377" | "5583378" | US-PGPUB; USPAT; USOCR 2/28/05
                                                                                                                                                                                                                                                                                             ( (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPA1
                                                                                                                                                                                                                                                                                                                                                (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                               (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    heat$1spreader or (heat adj (sink or spreader)) or heat$1sink) and "5410449"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (heat$1spreader or (heat adj (sink or spreader)) or heat$1sink) with (support or pcb o US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (heat$1spreader or (heat adj (sink or spreader)) or heat$1sink) with (support or pcb o US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-PGPUB; USPAT
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                                                                                                 JS-PGPUB; USPAT
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20020171144 and ((coefficient or cte) with (substrate))
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S311 and (coefficient or cte)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S325 and (@ad<"20040703" or @rlad<"20040703")
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ((coefficient or cte) with (bga or ball$1grid or c4) with (copper or cu or al or aluminum) US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ((coefficient or cte) with (bga or ball$1grid or c4) with (mismatch or mismatching or mi US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20020171144 and ((coefficient or cte))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ((heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) \US-PGPUB; USPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ( (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ( (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ( (heat$1spreader or (heat adj (sink or spreader or slug)) or heat$1sink or heat$1slug) US-PGPUB; USPAT
((coefficient or cte) with ((bga or ball$1grid or c4) near (bottom or back$1side) ) with (t US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                        ((coefficient or cte) with (bga or ball$1grid or c4) with ((bottom or back$1side) near2 (r US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ((coefficient or cte) with (bga or ball$1grid or c4) with ((bottom or back$1side) near5 (rUS-PGPUB; USPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ((coefficient or cte) with (bga or ball$1grid or c4) with (copper or cu) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (US-20020079592-$ or US-20020171144-$ or US-20020185718-$ or US-2003003526!US-PGPUB; USPAT
                                                        ((coefficient or cte) with ((bga or ball$1grid or c4) near (carrier or substrate)) with (cop<sub>l</sub>US-PGPUB; USPA1
                                                                                                                    ((coefficient or cte) with ((bga or ball$1grid or c4) near (carrier or substrate)) with (hea⊦US-PGPUB; USPA1
                                                                                                                                                                             ((coefficient or cte) with ((bga or ball$1grid or c4) near5 (bottom or back$1side) ) with US-PGPUB; USPAT
                                                                                                                                                                                                                                      ((coefficient or cte) with (bga or ball$1grid or c4) with ("same" or equal or match or maUS-PGPUB; USPAT
                                                                                                                                                                                                                                                                                            ((coefficient or cte) with (bga or ball$1grid or c4) with ((bottom or back$1side) near (h∈US-PGPUB; USPAT
                                                                                                                                                                                                                                                                                                                                                                                                                 ((coefficient or cte) with (bga or ball$1grid or c4) with ((bottom or back$1side) near3 (t US-PGPUB; USPA1
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(((bga or ball\$1grid or c4) near (bottom or back\$1side)) with (heat\$1spreader or (hea US-PGPUB; USPAT

3/16/05